REMARKS

The present application was filed on February 22, 2002 with claims 1 through 26. Claims 1, 3, and 18-26 were cancelled in the Amendment and Response to Office Action dated April 13, 2007. Claims 2 and 4-17 are presently pending in the above-identified patent application. Claims 4, 16, and 17 are proposed to be amended herein.

In the Office Action, the Examiner objected to claim 2 due to indicated informalities, rejected claims 2 and 4-17 under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter, rejected claims 2 and 4-17 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement, and rejected claim 2 and 4-17 under 35 U.S.C. §103(a) as being unpatentable over Parida et al. (IDS document: Pattern Discovery on Character Sets and Real-valued Data: Linear Bound on Irredundant Motifs and an Efficient Polynomial Time Algorithm, presentation on The Eleventh ACM-SIAM Symposium on Discrete Algorithms (SODA), held on January 9-11, 2000. See "SODA 2000 program," printed from the internet at http://www.siam.org/meetings/da00/ on 7/7/08).

Formal Objections

Claim 2 was objected to because it is dependent from a following claim. In particular t, the Examiner indicates that the Office is not asking applicant to renumber an originally filed claim but that, if the claims are found to be allowable, the claims would be renumbered.

Section 101 Rejection

Claims 2 and 4-17 were rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. Regarding claim 4, the Examiner asserts that, while the claim(s) require the method be performed by a processor, the processor does not have to be a particular apparatus or machine and that there is no physical transformation because a process of sequence motif manipulation does not transform an article or physical subject to a different state or thing. Regarding claim 17, the Examiner asserts instructions being embodied in the carrier wave is interpreted as being stored in the carrier wave (referring to U.S.P.N. 20080294613 A1).

Applicants maintain that, while there are a variety of embodiments of a processor, the term "processor" refers to a particular apparatus or machine.

Applicants also note that U.S.P.N. 20080294613 A1 does not disclose or suggest storing information in a carrier wave; U.S.P.N. 20080294613 A1 apparently teaches that the signal is used for the *transmission* of the information. Thus, U.S.P.N. 20080294613 A1 uses the term "carrier wave," i.e., a wave that carries information. The Examiner's definition of a storage

5 medium to include carrier waves is inconsistent with the well known definition of the cited term (see, wikipedia.com).

Applicants submit that each of the claims are in full compliance with 35 U.S.C. §101. Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. §101 be withdrawn.

10 Section 112, First Paragraph Rejection

Claims 2 and 4-17 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Regarding the amendment to claim 4 of "providing at least said at least one new motif as an output to a user, wherein said method is performed by a processor," the Examiner acknowledges that the specification discloses that the

15 method can be performed by a processor, but asserts that the specification does not adequately describe "providing at least said at least one new motif as an output to a user."

Applicants note that the independent claims have been amended to require "providing at least said at least one new motif as an output" and maintain that the step of providing the new motif as an output is an *inherent* step in the methods disclosed in the present

20 specification. Moreover, the Examiner has already asserted that *it would be obvious to one skilled in the art that the new motif generated by the algorithm is displayed or outputted to whoever uses the program, i.e. the user.* (See, page 10 of the present Office Action.)

Thus, Applicants respectfully request that the rejection under 35 U.S.C. §112 be withdrawn.

25 Independent Claims 4, 16 and 17

Independent Claims 4, 16 and 17 are rejected under 35 U.S.C. §103(a) as being unpatentable over Parida et al. In particular, the Examiner asserts that the algorithm disclosed in Parida is based on first detecting motifs or substrings of motifs, and then two agreeing motifs are concatenated to obtain a larger motif. At the end of each iteration, the set of budding motifs are

30 trimmed so that they do not grow exponentially. The Examiner asserts that this trimming step is

interpreted as being the same as the removing step of the instant claims. (Page 298 and the mathematical basis presented on pages 299-301.) The Examiner further asserts that the algorithm to detect and concatenate motifs is presented on pages 303-304.

Applicants note that the mathematical basis on pages 299-301 is an existential proof and is *not* a detection algorithm. The proof can be described as follows: For an input s, the footprints of all the overlapping maximal motifs (possibly exponential in number) are marked on s. The footprints of the redundant motifs are systematically trimmed, to expose only the irredundant and an amortization argument shows only a polynomial number of irredundant motifs. In the proof, there is *no* concern with how the motifs were discovered to begin with; the goal is merely bounding the number of irredundant motifs, for any input. Moreover, the cited paper does *not* disclose or suggest the *concatenation steps recited in the independent claims*. In particular, Parida does *not* disclose or suggest concatenating each of the plurality of first motifs with another of the plurality of first motifs to create a plurality of concatenated motifs; and concatenating motifs that have the same location list to create at least one new motif. Independent claims 4, 16, and 17, as amended, require concatenating each of the plurality of first motifs with another of the plurality of first motifs to create a plurality of concatenated motifs; removing one or more selected motifs, wherein said one or more selected motifs are any of the concatenated motifs and the first motifs, wherein the step of removing comprises removing suffix motifs, and wherein each motif in the concatenated motifs and the first motifs has an associated location list, and wherein the step of removing suffix motifs comprises the steps of: offsetting each location list for each of the motifs in the concatenated motifs and the first motifs to zero; checking each location list for each of the motifs in the concatenated motifs and the first motifs to determine location lists that are the same; and concatenating motifs that have the same location list to create at least one new motif.

Thus, Parida does not disclose or suggest concatenating each of the plurality of first motifs with another of the plurality of first motifs to create a plurality of concatenated motifs; removing one or more selected motifs, wherein said one or more selected motifs are any of the concatenated motifs and the first motifs, wherein the step of removing comprises removing suffix motifs, and wherein each motif in the concatenated motifs and the first motifs has an associated location list, and wherein the step of removing suffix motifs comprises the

steps of: offsetting each location list for each of the motifs in the concatenated motifs and the first motifs to zero; checking each location list for each of the motifs in the concatenated motifs and the first motifs to determine location lists that are the same; and concatenating motifs that have the same location list to create at least one new motif, as required by independent claims 4, 16, and 17, as amended.

> Dependent Claims 2 and 5-15

Claims 2 and 5-15 are dependent on claim 1 and are therefore patentably distinguished over Parida et al. because of their dependency from amended independent claim 1 for the reasons set forth above, as well as other elements these claims add in combination to their base claim.

All of the pending claims following entry of the amendments, i.e., claims 2 and 4-17, are in condition for allowance and such favorable action is earnestly solicited.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,

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